Ludowici Roofing Tile Company

CHICAGO ILLINOIS

MANUFACTURERS OF

Practical Interlocking Roofing Tiles

IN PLAIN AND GLAZED TERRA COTTA

1902

No. 4

This Catalogue Supersedes All Previous Issues Which Please Destroy

RESIDENCE OF HERBERT DUMARESQ, WEIRS, N. H.
N. J. CARLSON, ARCHITECT
ROOFED WITH T-12 (SPANISH) TILE

THE Ludowici Roofing Tile Company

was organized in 1893 for the purpose of manufacturing in America the celebrated Ludowici Interlocking Terra Cotta Roofing Tile, which is sold very extensively in Europe from the enormous factories of

CARL LUDOWICI

at Jockgrim, Pfalz, Germany. It has now the largest roofing tile plant in this country, turns out a greater variety and volume of product than any other, while in color work artistic effects have been reached not even attempted by other manufacturers. Thus leading in America as the parent Ludowici Company does in Germany.

Address all correspondence to the Company as follows:

LUDOWICI ROOFING TILE CO., Chamber of Commerce Building, CHICAGO.

LUDOWICI ROOFING TILE CO., Townsend Bldg., NEW YORK CITY. Frank C. Manson, Resident Manager.

LUDOWICI ROOFING TILE CO., Equitable Building, Denver, Colo. George P. Heinz, Resident Manager.

Regarding the purchase of tiles for use at the following points, address:

Boston, Mass., Fiske & Co., 164 Devonshire St.
Philadelphia, Pa., O. W. Ketcham, Builders' Exchange.
Pittsburg, Pa., C. A. Burgy, 139 Ninth St.
Cleveland, Ohio, Cleveland Hydraulic-Press Brick Co., 504 Cuyahoga Building.
Detroit, Mich., Thomas Bros. & Co., 711 Hammond Bldg.
Peoria, Ill., M. Dering, 330 S. Adams St.
St. Louis, Mo., A. P. Miller, Colonial Trust Building.
Milwaukee, Wis., Ricketson & Schwarz, 35 University Bldg.
Omaha, Neb., Omaha Hydraulic-Press Brick Co., 211 New York Life Bldg.
Kansas City, Mo., The Builders' Material Supply Co., Postal Telegraph Bldg.
Los Angeles, Cal., B. V. Collins, 213 W. Sixth St.
San Francisco, Cal., Smith & Young, 723 Market St.
Duluth, Minn., Thomson & Dunlop, 226 Michigan St.

Respectfully,

H. B. SKEELE, President.
T. D. WHITNEY, Secretary.

Ludowici Roofing Tile Co.

The Ludowici Patent Interlocking Clay Roofing Tile.

This tile, in its present perfection, is the result of many years of experiment and invention, and is the leading German tile. Its merits, as compared with those of all other German tiles, are evidenced in its selection by the German Imperial Commission for the roof of their Goverment Building at the World's Fair in Chicago. Being thus the best in Germany, where tiles are so perfectly made and universally used, it is plain that here, where they are as yet so little used and are generally so primitive in pattern, so laboriously laid, so inefficient in service, and so expensive, they must be, as they are, conspicuously in advance of every American Tile.

The above, written in 1893, still holds. The Ludowici tile leads now in America, as it has for years in Germany. This in spite of not only the keen competition of other manufacturers, but also of their united condemnation of our principles of manufacture, notably that of nonvitrification.

We do not claim exceptional ability in either manufacture or selling, but attribute our unusual success to the inherent merit of the Ludowici principles and the resulting character of our product.

We reaffirm, with the added emphasis of nine years' American experience, our belief that a properly made roofing tile reaches its best estate prior to vitrification, when hard burned, yet slightly absorbent.

We said in 1893 "in properly made tiles this slight porosity instead of being a defect is in reality a positive virtue, because it provides thereby for the absorption of inevitable condensation, and the consequent damage and annoyance of constant drip. This is the belief and practice in countries where tiles are best understood and most used."

As a general proposition, red burning clays, particularly shales, do not stand hard firing. The metallic oxides they carry which produce the color also act as fluxes reducing the melting point of the clay, giving excessive shrinkage and increasing greatly the liability to warp and damage the ware under high heat.

The first consideration in terra cotta roofing tiles is *straightness* with the minimum of shrinkage in burning. Otherwise the tiles cannot be made to lie down closely and smoothly on the roof, nor can the interlocking system be put to its perfect use. Hence the best results mechanically in true interlocking tiles of large sizes are obtained from light colored clay without the metallic fluxes.

THE INTERLOCKING

features of our tiles are of the greatest practical value. No other such device is so well considered and efficient, particularly as instanced in our T. 1 pattern, Figs 11 and 13. It entirely prevents the penetration of water through the joints and discharges such as enters onto the outside of the next lower tile. On so-called open construction, in which the tiles are laid on purlins without sheathing, no other pattern of tile is practically available.

Conclusive evidence of this lies in the fact that our competitors were unable to enter this field of modern roof construction which we had made so popular until they had copied very closely our T. 1 pattern.

Their old patterns of so-called interlocking tiles could not meet these rigid requirements.

FASTENING TILES.

The general practice, necessary with slate and common with other tiles, of nailing them to the roof is most faulty, in that it brings together *brittleness of material* and *rigidity of fastening* under conditions that must, and do, result destructively. The brittle ware cannot withstand the concussion of hammering, and subsequent structural motion, however slight and from whatever cause, completes the break. Pieces thus dropped out *cannot be replaced as originally laid.* Nailed fastening is at the upper and wrong end of the piece, for the force which it is placed to resist is applied at the lower end, thus exerting a destructive leverage against a fastening already defective. Ludowici interlocking tiles are all fastened with copper wire at the lower end. The fastening thus made is firm but not rigid, and cannot, as nails do, affect the tiles unfavorably in application or service.

FIRE-PROOF STEEL AND TERRA COTTA ROOFS

have been made practically available for industrial buildings by this company.

The extraordinary merit and attractiveness of this method of roof construction have resulted in its extensive use by many of the largest manufacturing concerns. By it the T. 1 tiles are laid directly on steel purlins, spaced thirteen and three-eighths inches centers, which thus have to carry weight of only seven and one-half lbs. to the square foot. Not only is the expense of hollow tile avoided, but there is a saving in iron necessary to carry their additional weight.

TILE VS. SLATE.

The latter is largely used, and both from the inertia of habit and the greater initial cost of tile, will continue in use, but it is only raw material, and as truly so as the slab of bark on an Indian tepee. A stratified rock has been split and trimmed and in lieu of better material used for roof covering. On the other hand terra cotta tile is hard burned clay, the very best material ever discovered in all the world's building, fashioned by man's thought into special designs, to meet certain definite needs, viz: that of roof covering. That such a product must and does more fully meet such needs than the incidental slate does not admit of argument.

A feature of special interest and value to owners is the impossibility of deception with regard to what goes into a roof. Slate may be laid at wide variance from the specifications without the owner's knowledge, and much less put into the roof than he pays for. But with our interlocking tiles the owner is sure of getting everything specified, for the work cannot be done with one tile less than is called for. We would suggest that in order to insure a more accurate comparison between the relative costs of tile and slate that the metal work be kept separate from both in the specifications and estimates.

ULTIMATE ECONOMY.

Notwithstanding the generally higher initial cost of tile belief in its *ultimate economy* is increasingly accepted. The breaking and dropping out of slate, the painting and eventual short life of metal, the constant repairs and annoyance attendant on gravel composition and of other roofs of only temporary character are all avoided by the use of a good terra cotta tile properly laid. When true economy can be afforded, there is no roof ultimately so inexpensive.

ROOFING TILES.

T. 1, Figs. 10 and 14, on pages 20 and 21, is our leading and most generally used tile for all classes of structures. It is the pattern used on open construction for industrial buildings and is our least expensive tile.

T. 3, Fig. 15, is of the same length and half the width of the T. 1, and is used for filling out frequently occurring spaces that are too narrow for whole tiles; also by their use the necessary breaking of joints is accomplished.

T. 4, Fig. 16, is of the same width as T. 1 and three inches shorter.

T. 5, Fig. 17, patented, has a wavy surface with rounded deep end, yielding strong shadow effect and fine expression.

T. 6, Fig. 19, is a small pattern for towers, dormer sides, and similar perpendicular surfaces.

These are nailed to the sheathing.

T. 8, Fig. 21, is a flat shingle, 6½x14 inches, to lay 6 inches to the weather.

T. 10, Fig. 22, is the ordinary so-called Spanish tile, 9x12. It has no interlocking device, is fastened with nails and all joints are laid in cement. We do not carry this pattern in stock, nor do we recommend or guarantee it, but will make it if desired.

T. 12, Fig. 23, patented, is the popular Spanish roll design to which the Ludowici interlocking principle has been applied. Neither nails nor cement are required in its application, and its life as a roof is not limited by the life of a perishable element in the joints on which their efficiency depends. This pattern requires special shapes (Fig. 25) for ridge course and (Fig. 24) for eaves course.

T. 14, Fig. 27, is an interlocking tile with flat surface and deep ends. It gives a bold effect of strong horizontal lines.

T. 16, Fig. 28, similar to T. 1 and T. 4, but much smaller. Desirable for towers, dormers and limited roof areas.

T. 17, Fig. 124, is a combination of flat pan and octagon roll in separate pieces, frequently used on buildings of classic design.

GLASS TILES.—The use of glass tiles to any considerable extent is still a novelty in this country to all our competitors. During the last two years over 25,000 pieces of our T. 1 tile in glass were placed in the roofs of train sheds, shops and factories.

In no way can light be introduced through a roof *as cheaply as by this method.* The light can be placed where desired and readily moved if necessary, the roof lines are unbroken, and the expense and annoyance of maintaining unsightly skylight frames are avoided. The economy of these tiles is due to the fact that the corrugated glass surface transmits many times more light than an equal area of plain or ribbed glass, the light being diffused and without glare. They are fac similes of the terra cotta tile in shape, interlock with them, and may be inserted in the roof singly or in areas of any extent.

VALLEY AND HIP TILES.—Tiles may be cut or cut and filled to fit valleys and hips before burning, at an additional charge. To do this properly, roof plan and elevations of at least one-fourth scale, with measurements, must be furnished.

We guarantee such work to fit these plans and figures, but cannot hold ourselves responsible for the failure of our work to fit structures not erected in exact accordance therewith.

GRADUATED TILES in various patterns are made to order as desired.

GABLE COPINGS (Figs. 29-33), are right angled pieces for finishing the edge of each horizontal course of tiles where it reaches the gable, and are made in rights and lefts.

RIDGE ROLLS—See Figs. 34-43. When closed ends (Fig. 35) are wanted it should be designated which end is desired closed.

VENTILATOR RIDGE—Ventilating hoods may be made on both sides of the large pattern C. 15, Fig. 47, if desired.

RIDGE AND DECK COPING—See Figs. 44-46.

HIP ROLLS—See Figs. 48-52.

HIP STARTERS—See Figs. 53-55.

ORNAMENTS for hip and ridge rolls, see Figs. 54-56.

TERMINALS AND FINIALS—See Figs. 60-89.

STOCK—Most of the foregoing patterns are kept in stock, and we are prepared to promptly furnish the others as well as any special designs that may be submitted.

COLOR—The generally desired color in roofing tiles is a bright terra cotta red. We offer this in a beautiful semi-glaze which is very attractive. Of full glazes we make a very complete line, embracing black, greens, browns, yellow and white, and we can furnish them in varying shades.

Our *dull green without gloss* is the most beautiful and artistic thing yet offered in terra cotta for roof covering.

We are selling very largely tiles of the natural color of the clay, neither slipped nor glazed, in varying shades from light red to nearly white. We also have the natural colored tiles in reddish buff which come from the kilns in sufficient variety of shades to furnish a pleasing color texture on the roof. These, while very attractive in appearance, are our least expensive tiles.

ORDERS—We prefer, both in our own interest and that of our patrons, to sell only to roofers, as thereby undivided responsibility for the character of the result is afforded the owner and good work assured. In case, however, difficulty is encountered in thus securing estimates from roofers, we will furnish them.

Inquiries for estimates and orders should be accompanied by drawings of roof plan and the four elevations. From four to eight weeks are required for the manufacture of the special pieces usually required.

When possible tiles should be ordered in car load lots, for the freight is very much lower than on smaller quantities, and the additional charge is also avoided that we must make for packing all our goods that are shipped in less than car lots.

PRICES of tiles vary from $6.00 to $30.00 per square, according to pattern and finish.

All prices are F. O. B. cars our factory.

CLAIMS FOR SHORTAGE AND BREAKAGE must be made promptly on receipt of goods. We pack everything carefully so as to insure safety in transit, but can assume no responsibility for breakage after the goods leave our hands.

HANDLING—The T. 1 tiles are always handled in pairs, with the under surface together and the ends reversed, with plaster laths between the courses, and in case of slipped and glazed tiles with straw between each pair. They are thus stacked on edge in rows in the factory yard, and in the same way loaded into the cars. They should be kept together in pairs in transferring to wagons and unloading at the work.

BY OBSERVING THE FOLLOWING DIRECTIONS

the Ludowici tiles may be very easily and cheaply laid. In fact no other high-class roofing material can be applied so inexpensively, and this fact, together with the very low price at which the tiles are sold, puts the best possible roof within the reach of all who desire a more than temporary structure.

PREPARING THE ROOF.

ROOF PITCH may be as low as one-fourth, or one in two, and from that to one-half pitch or greater.

SHEATHED CONSTRUCTION—For air-tight protection against dust and dry snow and for warmth, we advise the use of sheathing with one thickness of heavy roofing felt under the tiles. This is necessary where the interior is so finished that the tiles are not accessible from beneath.

The roofing felt is laid on sheathing, and secured in place by plaster laths laid up and down the roof, 24 inches apart.

On these are placed the horizontal strips (AA Fig. 4) on which the tiles are laid. The size of these depends on the rafter spacing. For rafters at twenty inch centers, or when laid on sheathing, one inch by two inch strips are heavy enough.

If there are valleys, one of these strips is laid on each side, parallel with and four to six inches from the center of each valley (See Figs. 5 and 6). The strips are then nailed to the entire roof, commencing at and parallel with the eaves, spaced as follows for the T. 1 tile: The distance from the lower edge of the first strip to the upper edge of the second strip is twelve inches. The top strip should not be more than four inches nor less than two and one-half inches from the peak of the roof —three inches is best (See Fig. 4, page 18). All other courses are given uniform spacing according to the size of the tile used. They must be nailed securely to rafters or sheathing, perfectly parallel and straight. (See "Spacing of Purlins," page 18.)

If the roof is designed for tiles, an even number of courses may be provided for, and the cutting of tiles avoided by making the total rafter length, after deducting the two spaces already mentioned, a multiple of the purlin spacing.

Make the first strip course one inch thicker than the others by using two strips instead of one.

OPEN CONSTRUCTION—When the attic is unfinished and the tiles are left accessible from below, they may be laid on strips without sheathing or paper (Fig. 90); this is known as open construction. When so laid the T. 1 pattern is without pointing, rain proof, but for entire protection against dust and snow the joints should be pointed on the underside with some good pointing material, mortar or cement. Supporting boards of the required width for valleys are laid directly on the rafters (Fig. 2).

SPACING OF PURLINS—Purlin spacing for T. 1 tiles should in general be thirteen and three-eighths inches, but it varies with the different patterns of tiles, and sometimes with the several colors of the same pattern. It is important that this spacing be accurately ascertained in each case from us or our agents. The required spacing for each pattern of tile is indicated on pages 21 and 22.

THE PURLIN GAUGE, Fig. 8, should be cut to the required dimensions between the arrow heads.

FOR HIPS AND VALLEYS—See Figs. 2-3-5-6, pages 18 and 19 and specifications page 15.

LAYING THE TILES.

The first or bottom course of tiles lies on the two lower strips, resting directly on both, so that the latter are between the two cross lugs BB, Fig. 4, of the tile and bearing against them. In all the other courses the tiles are laid with the upper end resting directly on the strip while the lower end rests on and locks into the head of the tile in the next course below.

In laying the tiles commence at the right hand lower corner, laying one tile flush with the strip ends, and next above it, preserving the right vertical line, lay a half tile, and so continue laying upward, and toward the left, using a half tile in beginning each alternate course. The tiles should be fitted snugly down to place, and especial care taken that the upper cross lug underneath the tile has an even bearing against the strips, and that the side and head locks are closely and accurately joined. The spacing determines the exact position of the head lock, but there may be some variation in the side lock, and unless laying them as closely as possible, or very loosely in order to fill out evenly some limited roof space, they should be laid with neither crowding nor spreading In order that each course may require an even number of whole or half tiles, and avoid the necessity of cutting, in finishing at the left, the width of all skylights, chimneys, ventilators, and other openings and of the roof spaces between them may be multiples of four inches. But in a roof space of twenty feet or more, adjustment can be made by laying the tiles tight or loose in the side locks.

It is well to lay the bottom course clear across before laying any others, and insert an even number of tiles by laying tight or loose as may be necessary, then by keeping the vertical lines right, the upper courses will come out even.

When spaces are not laid out for an even number of tiles and are too small to admit of adjustment as above, the tiles can be chipped to fit. In roofing old buildings or work not laid out for tiles, where the rafter length does not space to advantage, the upper row of tiles may be cut off at the top as much as is necessary.

Care must be exercised in laying tile, *not* to use those that may be chipped in the side lock or gutter. Lay the entire roof, before pointing up at Valleys and Hips.

FOR FASTENING TILES—See Fig. 11, page 20, and specifications page 16. The wiring of every other tile in each alternate horizontal course is generally considered sufficient fastening, but a larger proportion is frequently fastened where special exposure renders it desirable.

RIDGE ROLLS are laid spanning the peak of the roof and resting on the surface of the tiles on either side, see Fig. 4. They are bedded in cement mortar properly colored, with which the joints are also pointed up.

HIP ROLLS are laid in the same way except that each piece is hung to the hip roll board by a nail under the lap. The tiles are chipped to the line of this board on each side, the roll covering both chipped edges. A hip roll with closed end should be laid first at the eaves.

In laying Ridge or Hip Rolls, care must be taken not to fill the space under the roll *full* with cement or mortar.

VALLEYS—See specifications page 15. Valley tiles may be cut on the work, or for a small additional charge the tiles may be cut at the factory before burning.

THE GABLES may be completed when the gable copings are not used and an inexpensive finish is desired, by placing verge boards along both gable slopes covering the outer rafters and rising an inch above the tops of the tiles. All tile exposed over a gable wall to be wired.

ADVANTAGES

Claimed for the LUDOWICI over other Tiles are:

Much lower cost.

Uniformity in size.

No rigid fastenings.

Freedom from warping.

Its absorption of condensation.

Life not dependent on cement joints.

Great superiority in texture and finish.

The extreme ease with which it is laid.

Ample strength without excessive weight.

Single tiles may be readily replaced without injury to the others.

ALSO BETTER THAN ALL OTHER KINDS OF ROOFING MATERIAL, because

It is highly ornamental.

Clean cistern water is assured from a tile roof.

Fire-proof and, unlike slate, entirely unaffected by great heat.

Indestructible under any conditions of climate or weather that can possibly assail it.

Uninfluenced by salt air from the ocean, that so quickly destroys iron roofs at coast points.

Repairs so common to all other roofs and their expense and annoyance are entirely avoided.

A non-conductor of heat and electricity, therefore a protection from lightning and extremes of temperature.

Not affected by acid or sulphurous fumes so constantly encountered in metal working and in the use of poor coal.

It requires no nails, and being not rigidly fastened will accommodate itself, without injury, to any slight motion of the building, from settling, shrinkage, or other cause.

SPECIFICATIONS.

The following memoranda afford information that will be found useful in drawing specifica tions for the use of Ludowici tiles:

The roof to be prepared the same as for slate, with matched sheathing. One thickness of heavy, well-saturated roofing felt weighing not less than thirty pounds per square, to be laid on the sheathing, well lapped and secured in place by plaster laths nailed up and down the roof twenty-four inches apart. One inch by two inch wood strips surfaced one side, to be securely nailed over the entire roof, commencing at, and parallel with the eaves, accurately spaced as follows, to fit the tiles: The lower edge of the first course to be..........................inches from the upper edge of the second course. All the courses above to be..........................inches from upper edge to upper edge. (These distances vary with pattern of tile.) The first course of strips to be one inch thicker than the others. At the valleys a one inch by two inch strip is to be nailed to the sheathing on each side of the valley and parallel with it, at sufficient distance from the center to provide an open valley of the required width, depending on its length and the volume of water to be cared for, see Fig. 5.

Valley metal to be of..........................covering the valley and the 1x2 strip, and continuing to a point on the sheathing five inches beyond the strip on each side of the valley, where a half inch water edge is turned up and flattened nearly down toward the valley. The outside five inches of flashing to lie under the roofing felt, which is brought down to the valley strip over the flashing. Roofing felt to be laid under the valley metal and to be well lapped by the felt on both adjoining roofs.

All valleys and flashings to be put in place before the tiles are laid, except about chimneys and dormers, where aprons must be put in after tiles are laid. Where valleys empty on the roof above the eaves the valley flashing must lap 12 to 24 inches over the tiles below, according to the volume of water taken care of.

Where tiles are laid up to a perpendicular wall, a gutter two inches wide is laid under the tiles next to the wall, by using 1x2 strips, plaster laths and metal as specified above for valleys. The flashing should start from a point on the wall eight inches above the tiles, see Fig. 3.

Tiles to be well selected and hard burned, none to be used that are chipped in the side lock or gutter. At the valleys the tiles must project at least one inch over the metal covering the 1x2 inch strip so as to insure a free drip.

Every tile in the eaves course, and every other tile in each alternate course above, to be fastened to the sheathing with No. 18 copper wire, as follows: A one-inch blind staple to be driven into the sheathing directly under the pierced lug of the tile to be fastened, and with its wire already attached, the tile is laid in place after running the wire through the staple. The wire is then drawn tight and wound around a three-penny nail driven into the strip at the side of the tile so fastened.

Ridge roll to be.....................pattern, all to be laid in cement, and hip roll to be.....................pattern, all to be laid in cement mortar properly colored; the joints to be pointed with cement. A one-inch board of the necessary width to be placed on edge over the hip rafter to receive the hip rolls, each of which is to be nailed to this board.

FOR OPEN CONSTRUCTION, or that on which no sheathing is used, the size of the strips will depend on the rafter spacing. At twenty-inch centers, strips one inch by two are heavy enough. They are to be nailed directly on the rafters, and supporting boards for valleys are to be put in flush with rafters. In every detail except fastening proceed as in laying on sheathed roofs. The tiles are fastened with No. 18 copper wire, one end being attached to the pierced lug of the tile and the other end wound around a nail driven into the strip just below. If pointing is desired, the horizontal and vertical joints should be pointed on the under side after the roof is otherwise completed, with cement mortar, lime mortar with hair, or elastic cement.

REGARDING WORK DONE.

We do not care to fill up these pages and so greatly increase the bulk of this catalog by the printing of a long list of work done, and as for testimonials, those whose names would be most valued at the bottom of such letters are usually averse to their thus appearing in trade print.

We therefore omit all detailed matter of this kind, deeming it sufficient to say that during the last three years we have shipped nearly 50,000 squares or 115 acres of terra cotta roofing, and as far as we know to the entire satisfaction of our patrons.

We have extensive lists of buildings covered with our material, and widely distributed throughout the United States and Canada, and shall be glad to inform all who are interested regarding such work in their vicinity. We will also gladly furnish names of Architects and Engineers for reference.

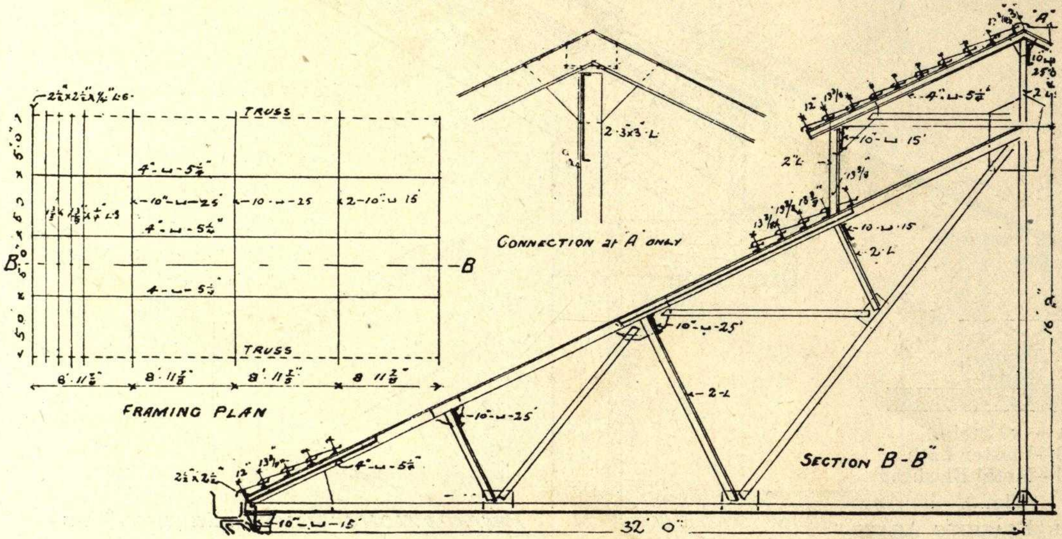
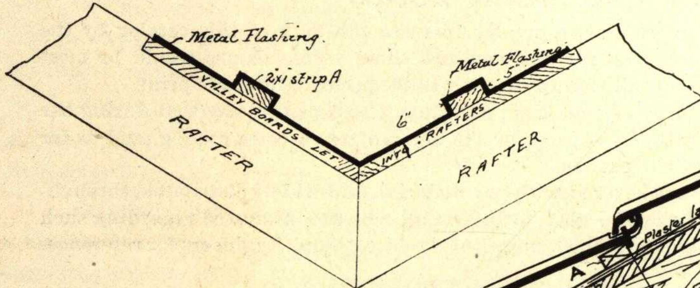
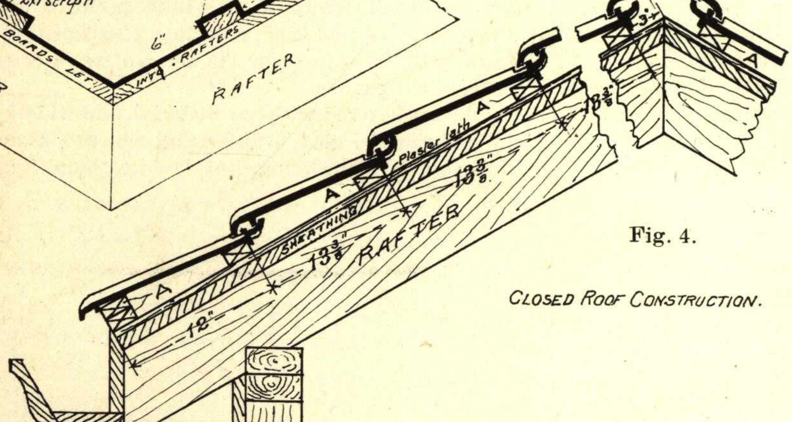


Fig. 1.—Iron Construction to carry Ludowici Roofing Tiles without Sheathing or Book Tiles.

Fig. 2. Preparation of Valley for Roofs without Sheathing.





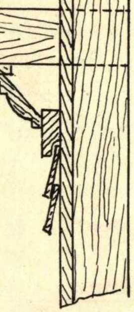
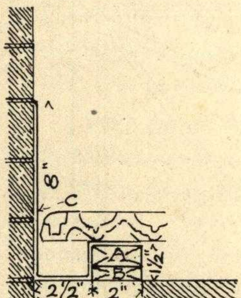


Fig. 4.

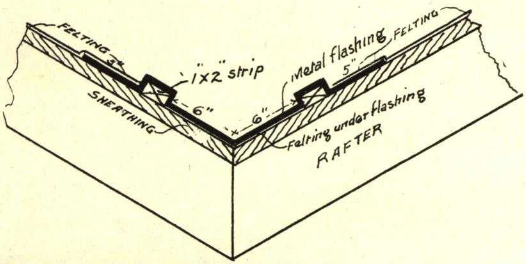
CLOSED ROOF CONSTRUCTION.



A—1x2 Strip.
B—Plaster Lath.
C—Metal Flashing.

Fig. 3.

Terminal Flashing Against Perpendicular Walls.



PREPARATION OF VALLEY FOR SHEATHED ROOFS

(Section.) Fig. 5.

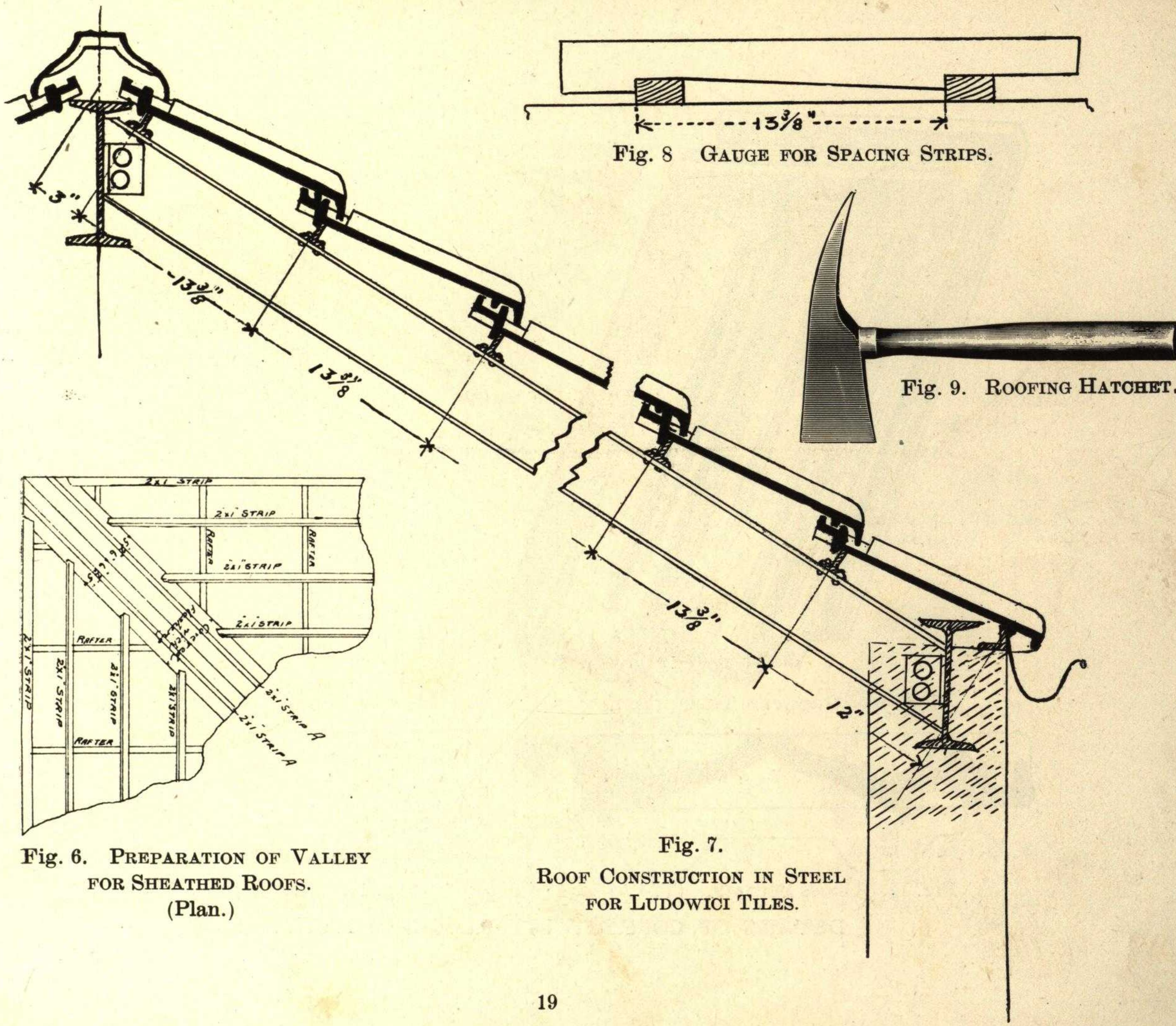


Fig. 8 GAUGE FOR SPACING STRIPS.

Fig. 9. ROOFING HATCHET.

Fig. 6. PREPARATION OF VALLEY FOR SHEATHED ROOFS. (Plan.)

Fig. 7.
ROOF CONSTRUCTION IN STEEL FOR LUDOWICI TILES.

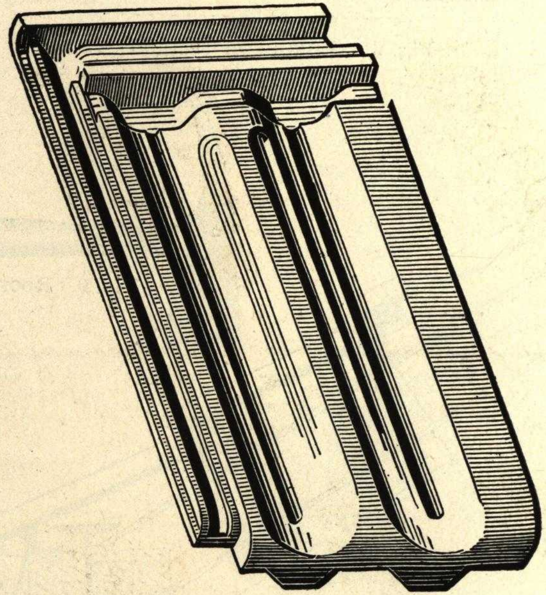


Fig. 10. Grooved Tile. (T. 1.)

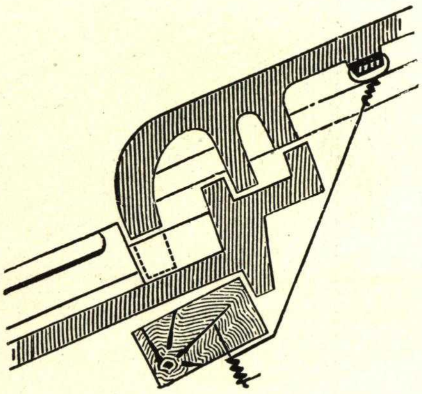


Fig 11. (T. 1.)

Showing Head Lock and Wiring on Open Construction.

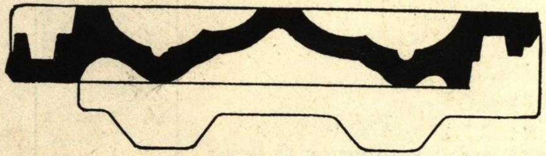


Fig. 12. Cross Section. (T. 1.)

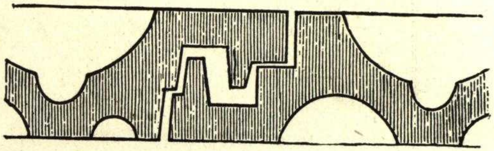


Fig. 13. Side Lock. (T. 1.)

DETAILS OF CORRECT INTERLOCKING PRINCIPLES.

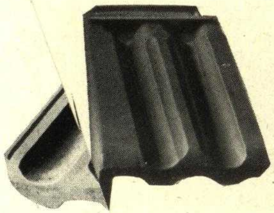


Fig. 14. [illegible]. (T. 1.)
9x16 inches.
Weight per square.....750 lbs.
Number " 135
Purlin spacing about 13⅜ ins.
" (eaves course) 12 "

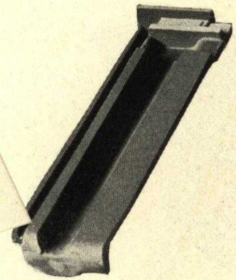


Fig. 15. (T. 3.)
Same length and half the width of T. 1.

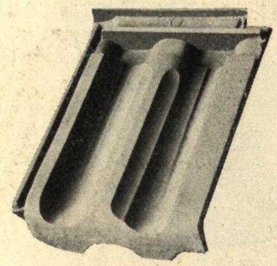


Fig. 16. TILE. (T. 4.)
9x13 inches.
Weight per square.....800 lbs.
Number " 172
Purlin spacing about 10⅜ ins.
" (eaves course) 9 "

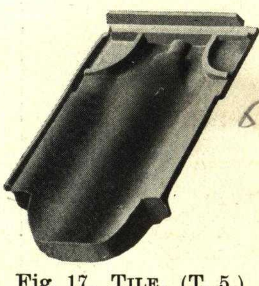


Fig. 17. TILE. (T. 5.)
8¾x15¼ inches. Patented.
Weight per square.....945 lbs.
Number " 180
Purlin spacing about 10¼ ins.
" (eaves course) 9 "

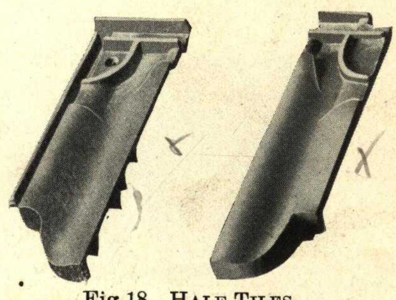


Fig 18. HALF TILES.
For T. 5, right and left.

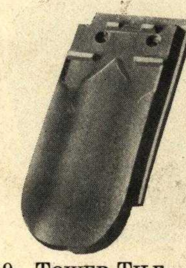
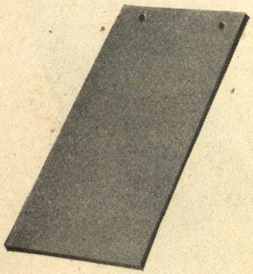


Fig. 19. TOWER TILE. (T. 6.)
5x11 inches.
Weight per square.....700 lbs.
Number " 390



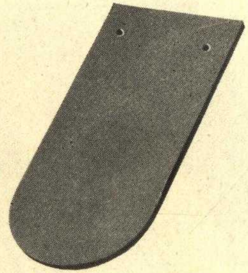


Fig. 21. Tile. (T. 8.)

6½x14 inches.

Laid 6 inches to weather.

Weight per square............................830 lbs.
Number " 385

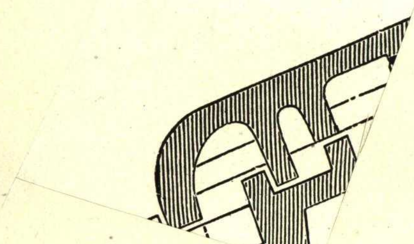


Fig. 27. Tile. (T. 14.)

9x13 inches.

Weight per square...........800 lbs.
Number " 175

This pattern may be made to lay without purlins.

Purlin spacing..........10¼ inches.
" (eaves course) 9 "

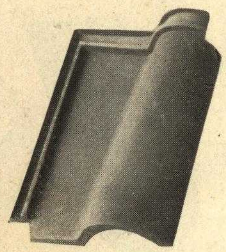


Fig. 23. Tile. (T. 12.)

9x12 inches. Patented.

Weight per square.....850 lbs.
Number " 180
Purlin spacing about 10¼ ins.
" (eaves course) 10 "

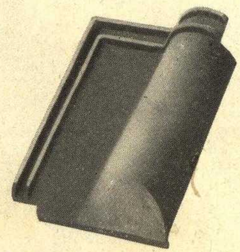


Fig. 24. Tile. (T. 12.)

Closed bottom, for eaves course.

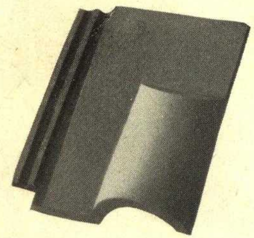


Fig. 25. Tile. (T. 12.)

Flanged and Closed Top, for ridge course.

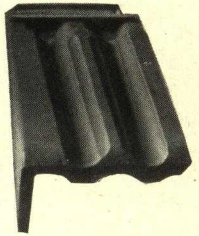


Fig. 29. Gable Coping.
(G. 1 Left) for T. 1 Tile.
Depth of Flange below bottom of Tile, 4½ inches.
Weight per foot, 7.5 lbs.

Fig. 32. Gable Coping.
(G. 6 Right) for T. 6 Tile.
Flange 4½ inches deep.
Weight per foot, 3.5 lbs.

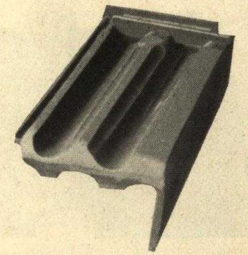


Fig. 30. Gable Coping.
(G. 1 Right) for T. 1 Tile.
Depth of Flange below bottom of Tile, 4½ inches.
Weight per foot, 7.5 lbs.

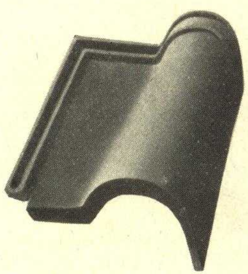


Fig. 33A. Gable Coping.
(G. 12 Right) for T. 12 Tile.
Depth of Flange below bottom of Tile, 3 inches.
Weight per foot, 6 lbs.

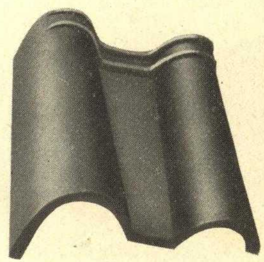


Fig. 33B.
Double Roll Gable Coping.
For T. 12 Tile.

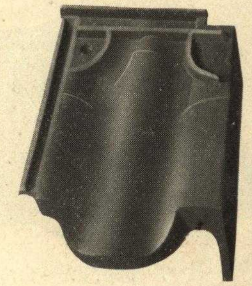


Fig. 31. Gable Coping.
(G. 5 Right) for T. 5 Tile.
Depth of Flange below bottom of Tile, 5 inches.
Weight per foot, 7 lbs.

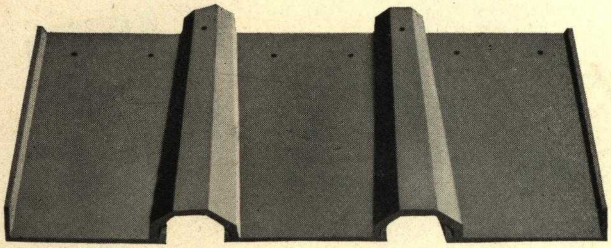
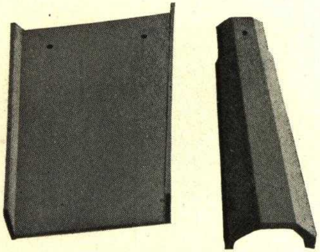


Fig. 125. T. 17. GREEK TILE.



T. 17. Fig. 124.
Size: PAN.........7½x12 inches.
" ROLL.......4 x12 "
Weight..................650 lbs.
Number..................145

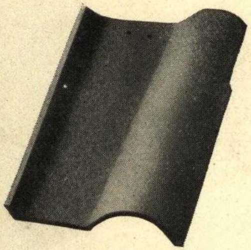


Fig. 22. TILE. (T. 10.)
9x12 inches.
Weight per square.....700 lbs.
Number " 200

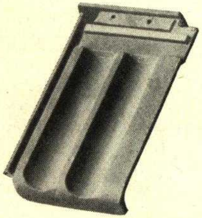


Fig. 28. TILE. (T. 16.)
7x10¾ inches.
Weight per square.....800 lbs.
Number " 290
To be nailed.

EN

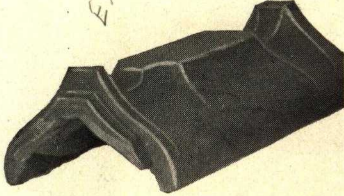


Fig. 34. Ridge Roll. (C 9.)

Length to weather . . 20 inches.
Span inside . . . . 8½ "
Height outside . . . . . . 5½ "
Weight per foot . . . . . 7.2 lbs.

Fig. 35. Ridge Roll. (C. 9.)

With plain closed end.

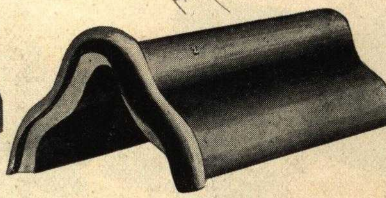


Fig. 36. Ridge Roll. (C. 24.)

Length to weather . . . 20 inches.
Span inside . . . . 7 "
Height outside . . . . . . 6 "
Weight per foot . . . . 9 lbs.

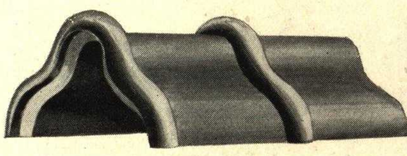


Fig. 37. Ridge Roll. (C. 25.)

Length to weather . . 20 inches.
Span inside . . . . 7 "
Height outside . . . . . . 6 "
Weight per foot . . . . . 10 lbs.

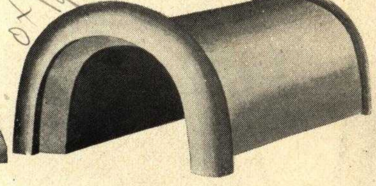


Fig. 38. Ridge Roll. (C. 22.)

Length to weather . . 20 inches.
Span inside . . . . 6 "
Height outside . . . . . . 5½ "
Weight per foot . . . . . 10 lbs.

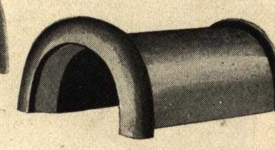


Fig. 39. Ridge Roll. (C. 23.)

Length to weather . . . 12 inches
Span inside . . . . 4 "
Height outside . . . . 4 "
Weight per foot . . . . . 7 lbs.

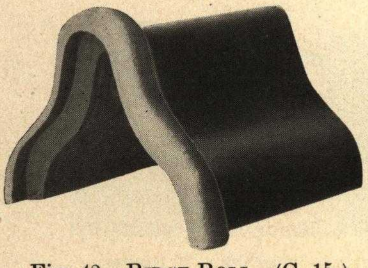


Fig. 42. Ridge Roll. (C. 15.)
Length to weather . . 15 inches.
Span inside . . . . 13½ "
Height outside . . . . . . 11 "
Weight per foot . . . . . 23 lbs.

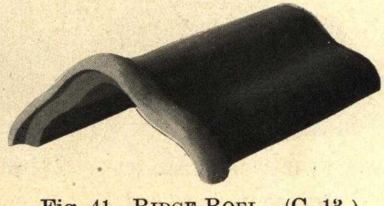


Fig. 41. Ridge Roel. (C. 13.)
Length to weather . . . 20 inches.
Span inside . . . . 11 "
Height outside . . . . . . 5½ "
Weight per foot . . . . . 12 lbs.

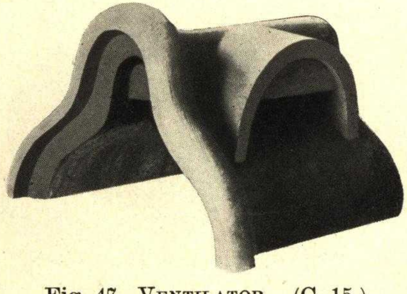


Fig. 47. Ventilator. (C. 15.)
Length to weather . . . 15 inches.
Span inside . . . . 13½ "
Height outside . . . . . . 11 "
Weight per foot . . . . . 28 lbs.
Ventilation, 8½" × 3" = 25½".

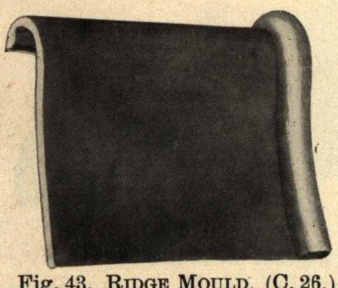


Fig. 43. Ridge Mould. (C. 26.)
Length to weather, 15½ inches.
Height . . . . 12 "
Weight per foot . . . 15 lbs.

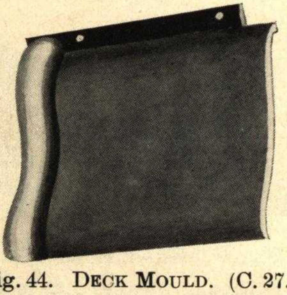


Fig. 44. Deck Mould. (C. 27.)
Length to weather, 15½ inches.
Height . . . . 12 "
Weight per foot . . . 12 lbs.

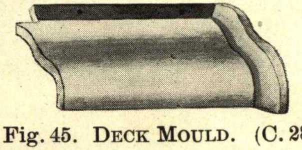


Fig. 45. Deck Mould. (C. 28.)
Length to weather . . 12 inches.
Height . . . . 4½ "
Weight per foot . . . . . 6 lbs.

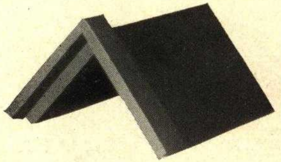
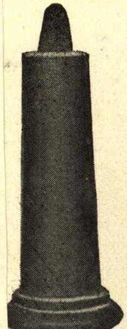


Fig. 46. Ridge Roll. (C. 29.)

Length..............12 inches
Span inside..........11 "
Height outside..... 3 "
Weight per foot.....7.5 lbs.



g. 61. Base.
ght, 17 inches.
at base, 6 inches.

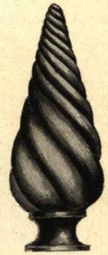


Fig. 62. Finia
Height, 13 inch

Fig. 48. Hip Roll. (H. 10.)

Length to weather... 9 inches.
Small span inside.... 2½ "
Weight per foot.....2.6 lbs.

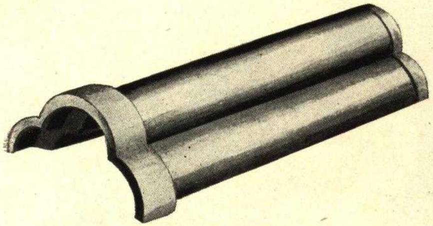


Fig. 50. Hip Roll. (H. 14.)

Length to weather...20 inches.
Span inside.......... 6 "
Weight per foot..... 7½ lbs.

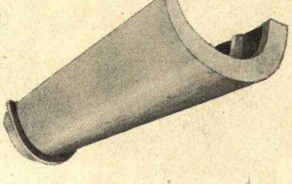


Fig. 21. Hip Roll. (H. 20.)

Length to weather, 13½ inches.
Small span inside.. 3 "
Weight per foot... 6½ lbs.

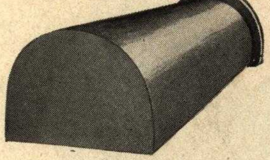


Fig. 55. Hip Roll. (H. 20.)

With plain closed end.

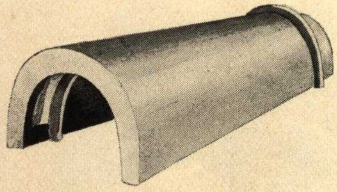


Fig. 52. HIP ROLL. (H. 21.)

Length to weather, 16 inches.
Small span inside.. 3½ "
Weight per foot... 9 lbs.

HIP ...

With p...

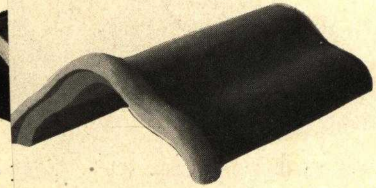


Fig. 41. RIDGE ROEL. (C. 13.)

Length to weather...20 inches.
Span inside.........11 "
Height outside ...... 5½ "

ORNAMENTAL HIP ROLL STARTER.

Made for all Hip Rolls.

8....this Starter lays 10 inches to weather.
1.... " " " 14 " "
4.... " " " 10 " "
0.... " " " 18 " "
1.... " " " 15½ " "

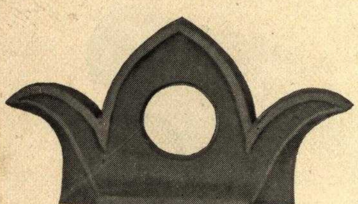


Fig. 56.

FINIAL FOR RIDGE ROLL.

Height........ 9 inches.
Spread....... 18 "

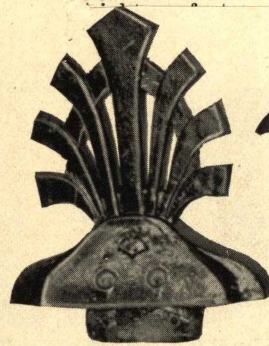


Fig. 57.

FINIAL FOR RIDGE ROLL.

Height..13 inches.
Spread...11 "

Fig. 58.

FINIAL FOR RIDGE ROLL.

Height..12 inches.
Spread...10½ "

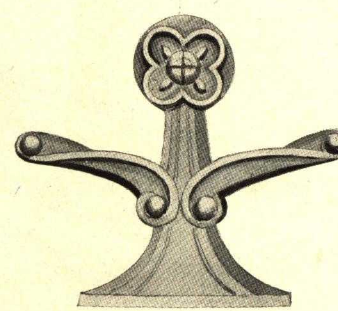


Fig. 59.

FINIAL FOR RIDGE ROLL.

Height........10 inches.
Spread........16 "

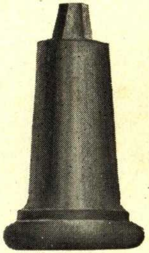


Fig. 60. Base.
Height, 12 inches.
Diam. at Base, 7 inches.

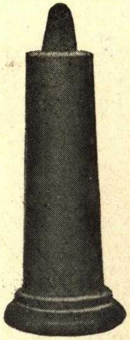


Fig. 61. Base.
Height, 17 inches.
Diam. at base, 6 inches.

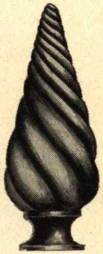


Fig. 62. Finial.
Height, 13 inches,

No. 63. Finial.
Height, 15 inches.
Diam. at base, 5 inches.

Fig. 65. Finial.
Height, 24 inches.
Diameter at base, 6 inches.

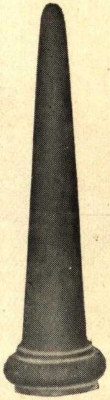


Fig. 66. Finial.
Height, 24 inches.
Diameter at base, 6 inches.

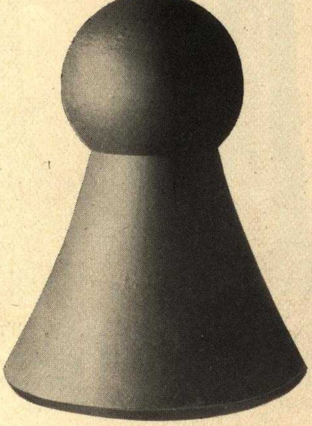


Fig. 90. Finial.
Height, 20½ inches.
Diameter at base, 16 inches.
Diameter of ball, 9 inches.

Fig. 68.
FINIAL.
Height, 36 in.
Diam. base, 9 in.

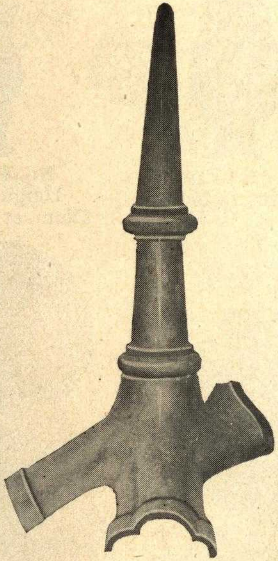


Fig. 69. TERMINAL.
Height above Ridge,
33 inches.
Diam. base, 7 inches.

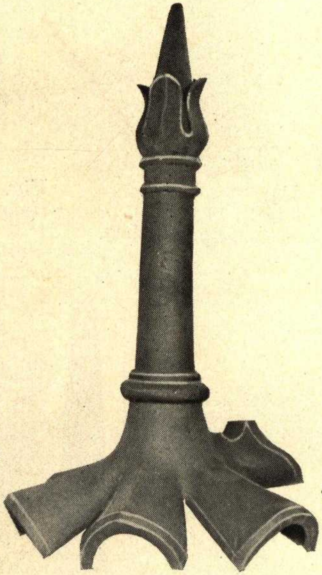


Fig. 70. TERMINAL.
Height above Ridge,
36 inches.
Diam. base, 7½ inches.

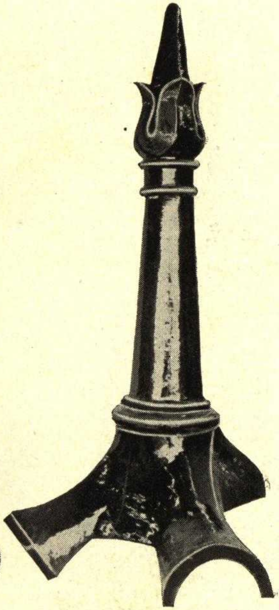


Fig. 71. TERMINAL.
Height above Ridge,
36 inches.
Diam. at base, 9 inches.

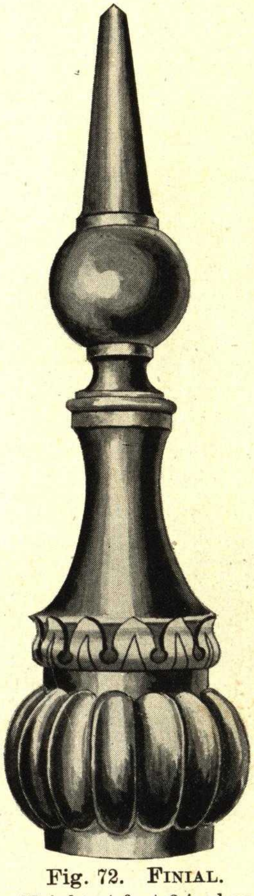
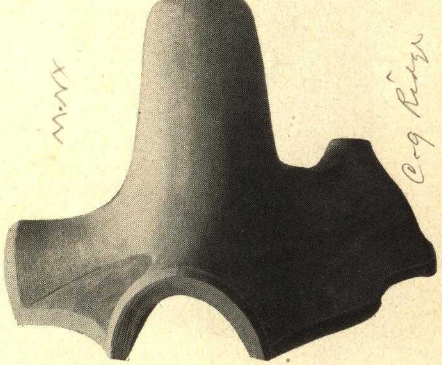


Fig. 72. Finial.
Height, 4 feet 6 inches.
Diam. at base, 11 inches.

M.NX



C-9 Ridge

Fig. 74. Terminal.
Height above Ridge, 6 inches.

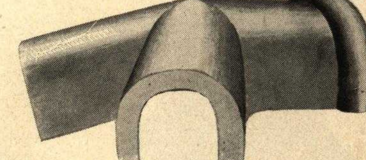


Fig. 75. Terminal.

O.NX

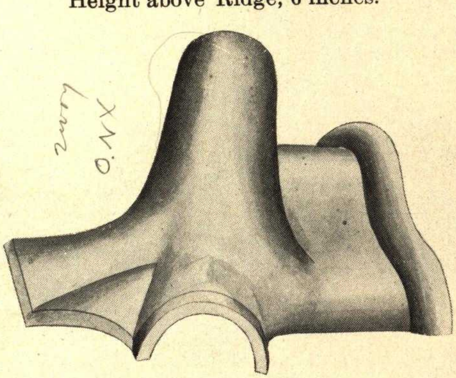


Fig. 76. Terminal.
Height above Ridge, 7 inches.

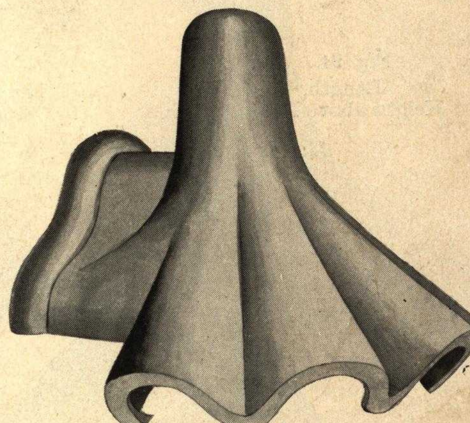


Fig. 77. Terminal.
Height above Ridge, 10 inches.

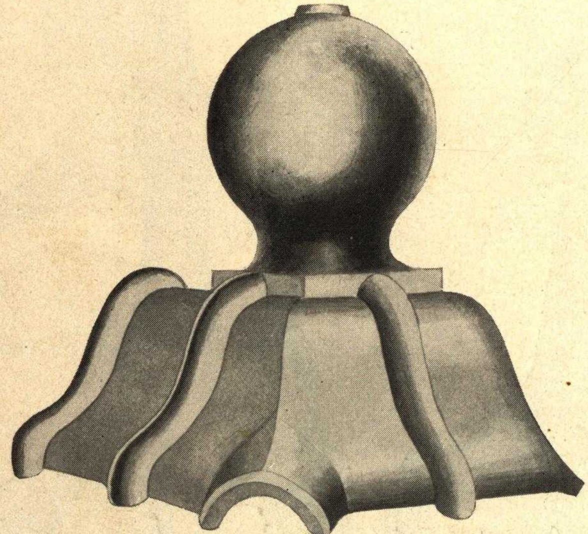


Fig. 86. Terminal for Ventilator End.
Height above Ridge, 20½ inches.
Diameter of Ball, 15½ inches.

Fig. 87. Crocket on Hip. (H. 14.)
Length 21½ in. Height 18½ in. Width 16½ in.

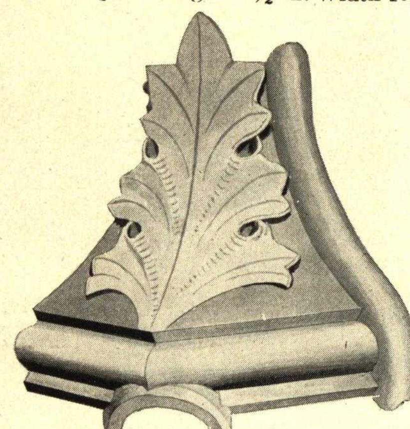


Fig. 89. Mitered Corner.
For Deck Mould, C. 27.

Fig. 90. LAYING TILES ON OPEN CONSTRUCTION WITHOUT SHEATHING.

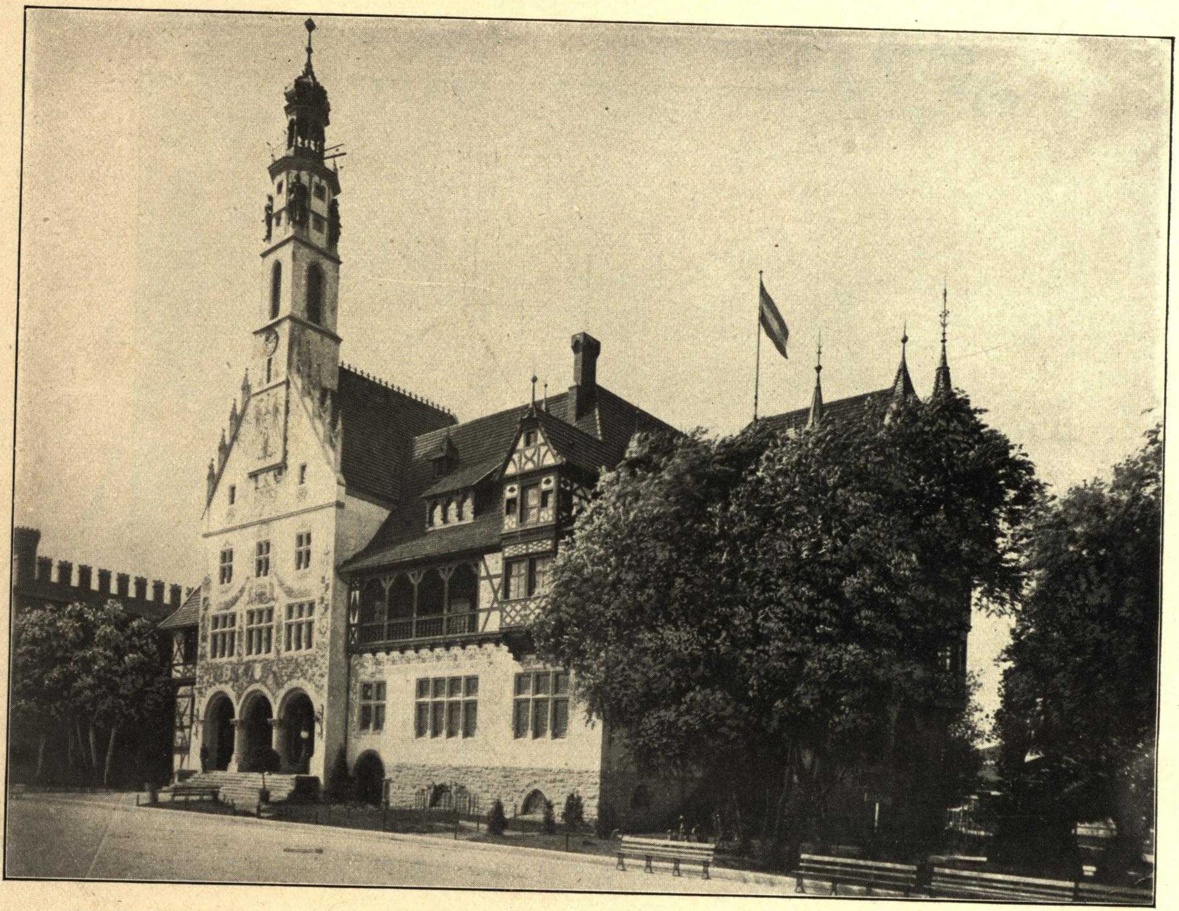


Fig. 95. GERMAN GOVERNMENT BUILDING AT WORLD'S COLUMBIAN EXPOSITION, CHICAGO, 1893.
(Roofed with T. 1 Glazed Ludowici Tile.)

Fig. 96. RESIDENCE OF JOHN R. TRUE, CHICAGO. (T. 1 Green Full Glazed.) HUEHL & SCHMID, Architects.

Fig. 97. **RESIDENCE OF FRANK WALKER, DETROIT, MICH.** (T. 1 Green Dull Glaze.) **MASON & RICE, Architects.**

Fig. 98. **RESIDENCE, DETROIT, MICH.** **(T. 1 Pattern.)** **H. STEVENS, Architect.**

Fig. 99. RESIDENCE, CINCINNATI, OHIO. (T. 1 Pattern.) SAMUEL HANNAFORD & SONS, Architects.

Fig. 100. ST. MARY'S SCHOOL, CHICAGO. (T. 1 Red Tile.) H. J. SCHLACKS, Architect.

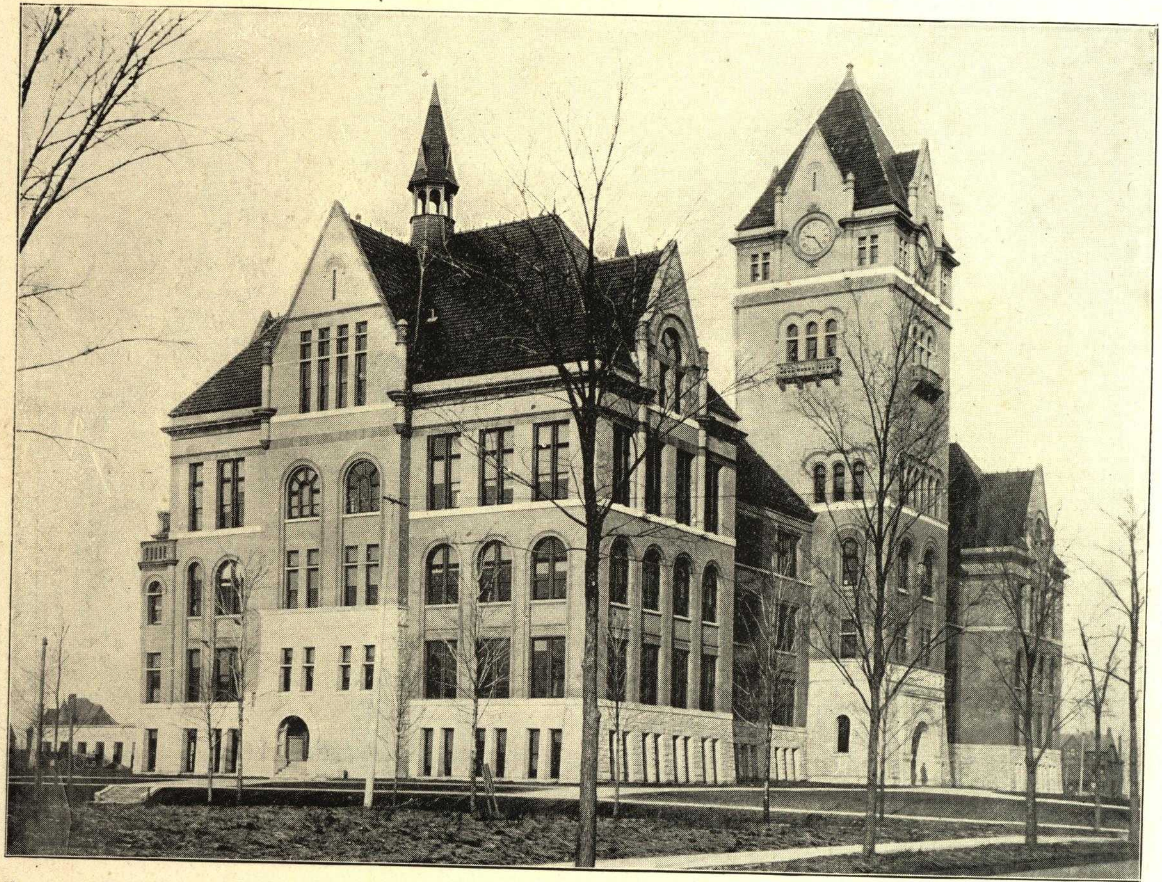


Fig. 101. CENTRAL HIGH SCHOOL, DETROIT, MICH. (T. 1 Brown Glaze. MALCOMSON & HIGGINBOTHAM, Architects.

Fig. 102. FARREN SCHOOL, CHICAGO. (T. 1 Pattern.) NORMAND S. PATTON, Architect.

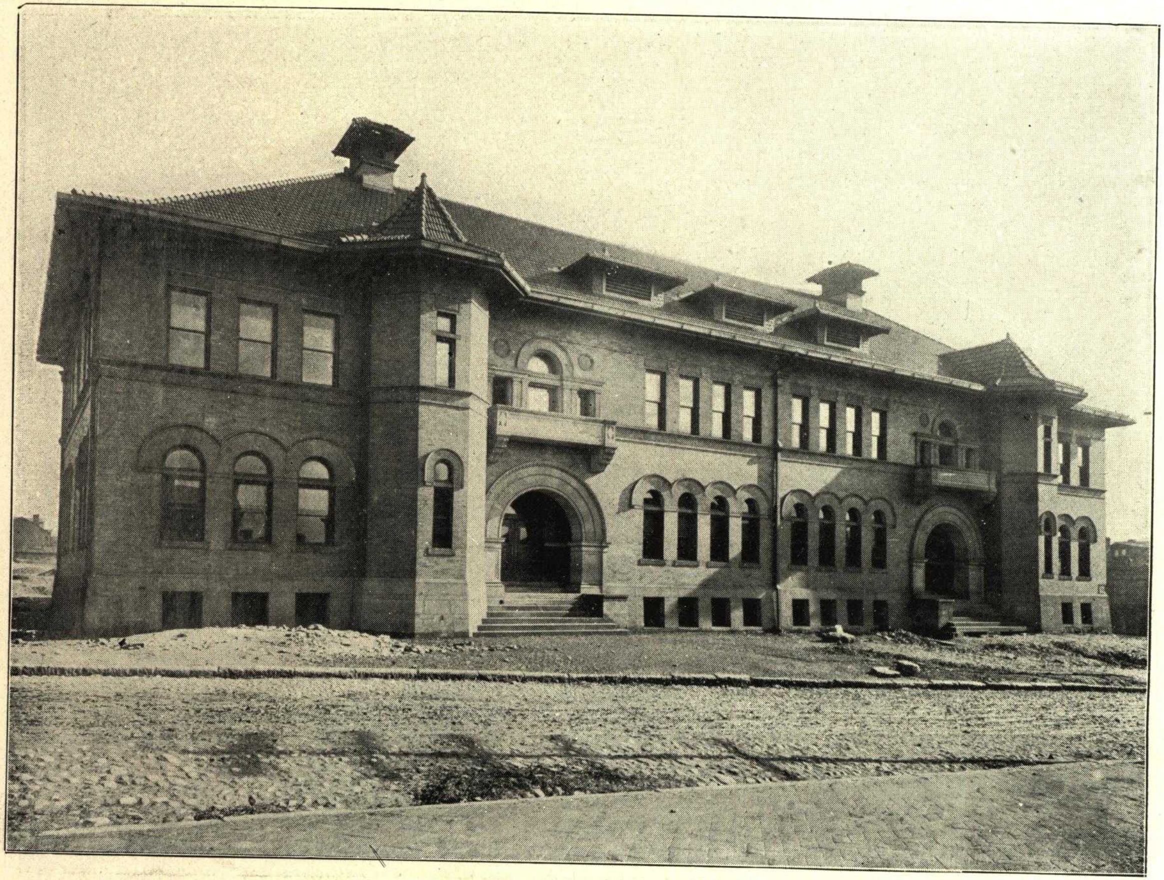


Fig. 103. SIXTEENTH WARD SCHOOL, PITTSBURG, PA. (T. 1 Pattern.) S. T. McLaren, Architect.

Fig. 104. STABLES BELLE ISLE PARK, DETROIT, MICH. (T. 1 Pattern.) MALCOMSON & HIGGINBOTHAM, Architects.

Fig. 105. RESIDENCE OF MRS. S. BERNARD, LOS ANGELES, CALIFORNIA. (T. 12 Spanish Tile) JOHN PARKINSON, Archt.

Fig. 106. F. W. MORGAN, SUMMER HOME, BELOIT, WIS. (T. 12 Spanish Red.) RICHARD KIEHNEL, Architect.

Fig. 109. RESIDENCE OF JOHN LYNCH, CHICAGO. (T. 12 Spanish Full Glaze.) JENNEY & MUNDIE, Architects.

Fig. 110. RAYMOND HOTEL, PASADENA, CAL. (T. 12 Spanish Red.) HUNT & EAGER, Architects.

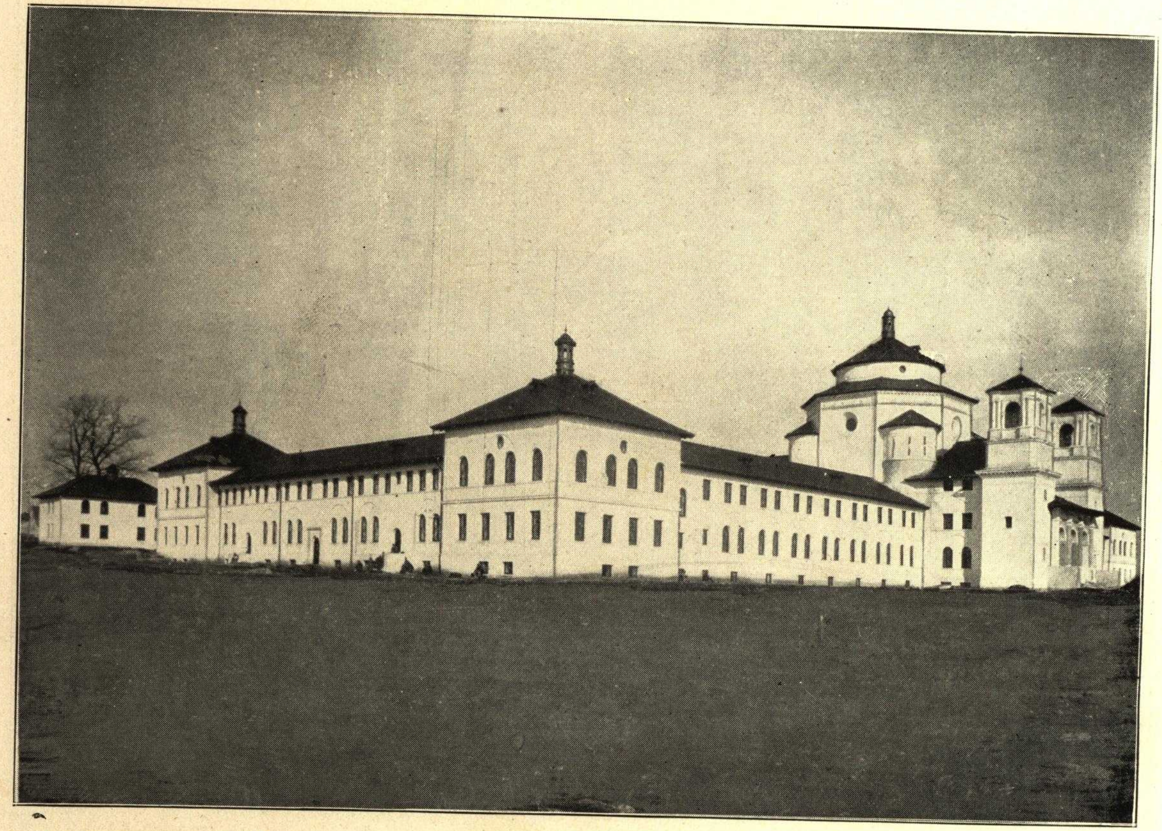


Fig. 111. OVERBROOK BLIND ASYLUM, OVERBROOK, PA. (T. 12 Spanish Brown Glaze.) COPE & STEWARDSON, Archts.

Fig. 112. J. H. MOORE RESIDENCE, LAKE GENEVA, WIS. (T. 8 Green Dull Glazed.) JARVIS HUNT. Architect.

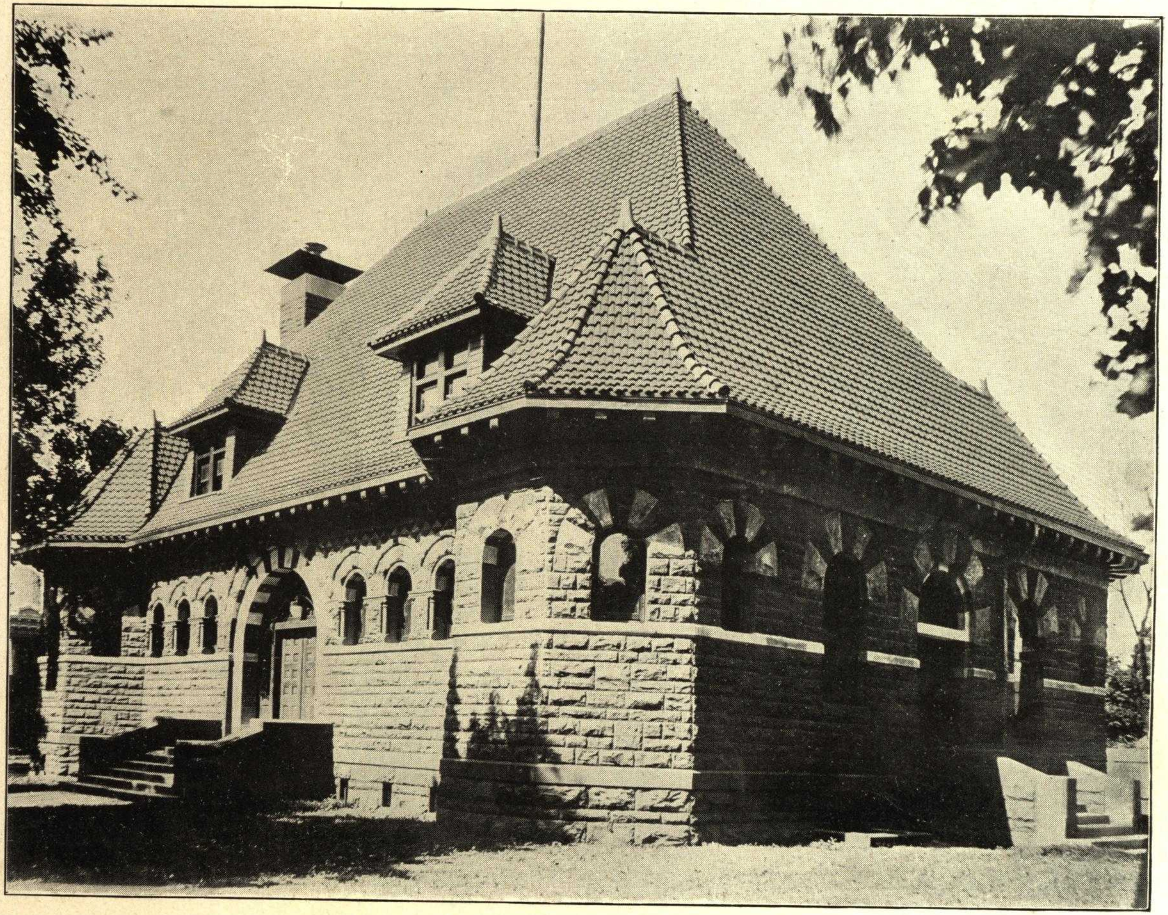


Fig. 113. POST OFFICE, MADISON, IND. (T. 5 Pattern.)

Fig. 114. C. B. & Q. STATION, HINSDALE, ILL. (T. 5 Pattern.)

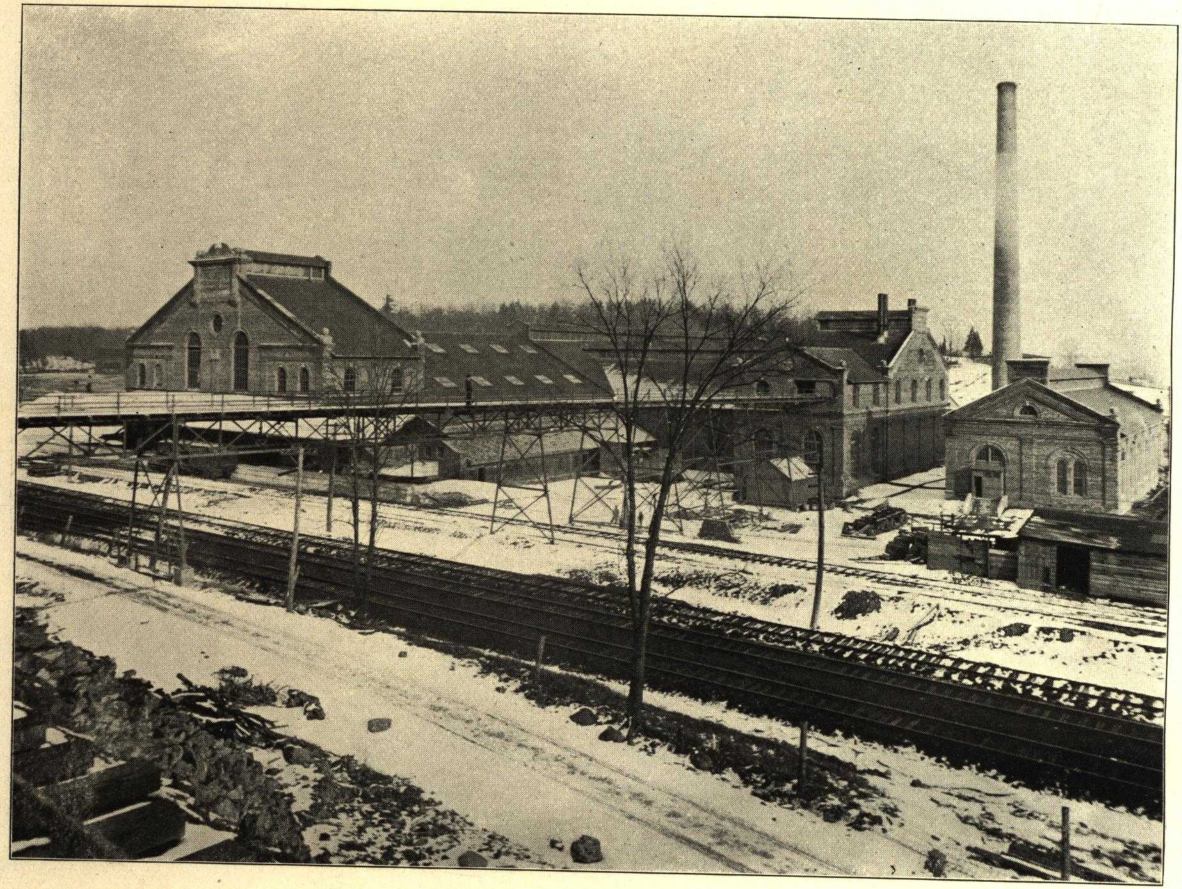


Fig. 115. ALSEN'S CEMENT CO. PLANT, WEST CAMP, N. Y. (T. 1 Tile.) LATHBURY & SPACKMAN, Engrs. Phila.

Fig. 116. NOR. PAC. RY. STATION, BISMARCK, NO. DAK. (T. 1 Red Tile.) REED & STERN, Arcts., St. Paul and New York.

Fig. 117. B. & M. STATION, OMAHA, NEB. (T. 1 Brown Glaze.) WALKER & KIMBALL, Architects.

Fig. 118. PASSENGER STATION, CHICAGO HEIGHTS, ILL. (T. 1 Red Tile.) CHICAGO T. T. R. R. F. E. PARADIS, Ch. Eng.

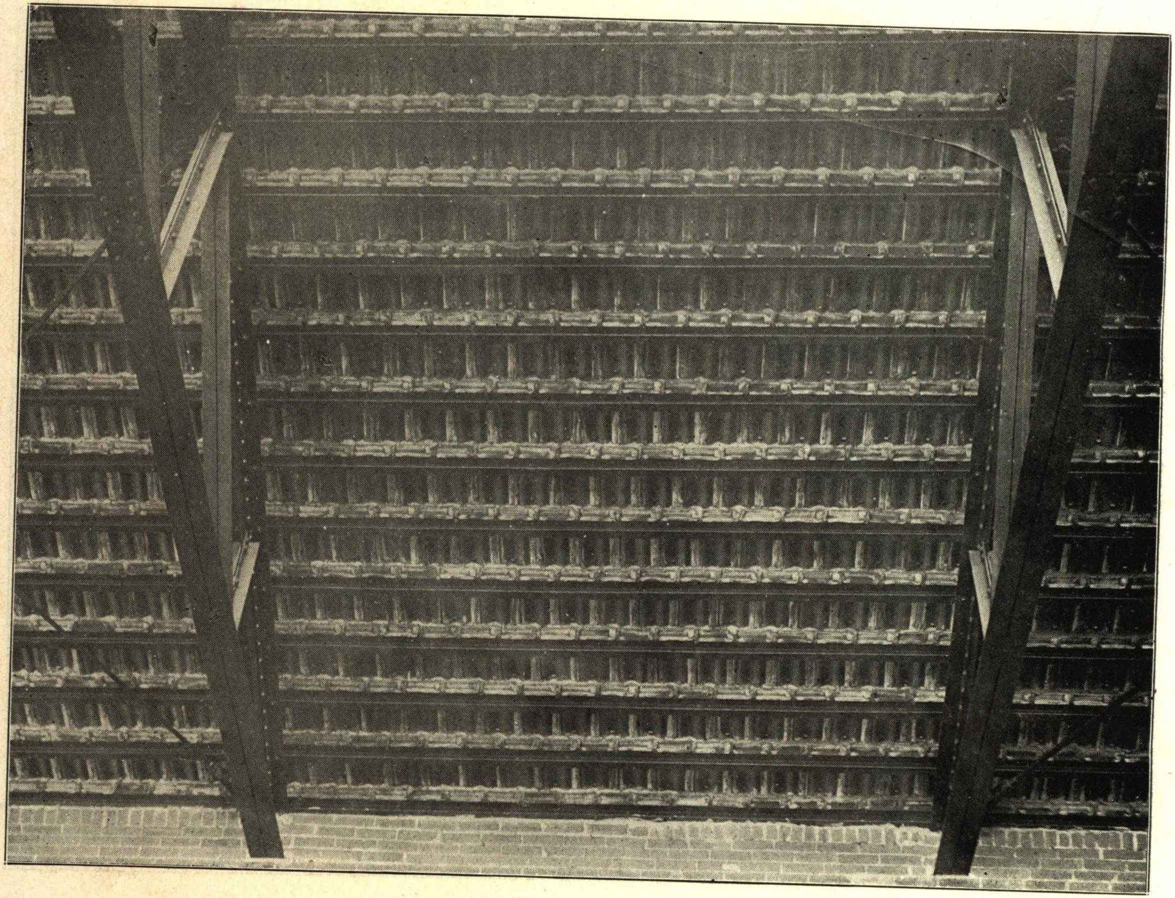


Fig. 121. CITY ELECTRIC LIGHT STATION, INTERIOR VIEW, CHICAGO. (T. 1 Pattern.)

St. Paul's Church, Chicago, Rev. Geo. D. Heldman
Roofed With T-1 Red Semi-Glazed Tile
Full-Glazed Green Trimmings

Henry J. Schlacks
Architect
Ecclesiologist

Ludowici Interlocking Roofing Tile.